

D-Link
DWM-652
3.5G
Express Card

Manual
Version 1.00



Contents

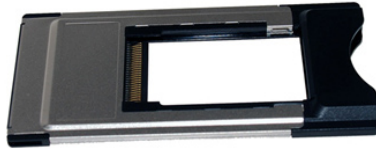
Package Contents	3
System Requirements	3
Introduction.....	4
Features and Benefits	5
Hardware Overview (LEDs).....	5
Wireless Basics	6
Getting Started	8
Using the Configuration Utility	9
Logging into Utility.....	9
Wireless Settings	10
WEP Encryption	11
WPA Authentication.....	12
WPA-PSK/WPA2-PSK Encryption	13
LAN Settings	14
DHCP Configuration.....	15
Performance Settings.....	16
MAC Address Filtering	17
Change Password.....	18
System Backup/Restore.....	18
Firmware Upgrade	19
Device Information	19
System Log	20
Traffic and Wireless Statistics	21
Networking Basics	22
Troubleshooting.....	35

What's in the box

- **DWM-652:** Insert this into an ExpressCard Slot if available.



- **PCMCIA Adaptor Casing (optional):** Slide the DWM-652 in this casing if a PCMCIA slot is available.



■ USB Accessories

- a. **DWM-652 USB Adaptor Casing (optional):** Insert the DWM-652 (1) into this case if no PCMCIA/ExpressCard slot is available and connect it to the PC with the USB Cable (3b).
- b. **USB Cable (optional):** Insert the small end into the Adaptor Casing (3a) and the two large ends into the PC. Two free USB ports are required for maximum signal strength. The gray port can be shared with a mouse or keyboard.
- c. **Notebook Screen Hook (optional):** Secures the DWM-652 to a laptop computer screen.



Features

- Worldwide Roaming
- Supports 2G, 3G and 3.5G standards
- SMS Messaging
- USB, ExpressCard or PCMCIA Interface
- Windows Vista, XP and 2000 compatibility
- Does not interfere with other USB peripherals
- Six language interface (English, French, German, Italian, Spanish and Traditional Chinese)
- Plug & Play functionality
- Dual Antennas

Before You Install

Information

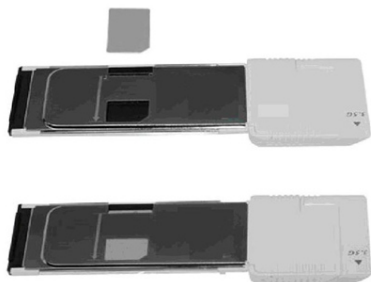
Before installing the DWM-652, we recommend obtaining the following information from the SIM Card Mobile network operator:

Access Point Name (APN) - For many carriers, the APN may simply be Internet.

Phone Number - The Phone Number to dial to establish a network connection. D-Link software helps input this number correctly.

Password (Optional) - Some (but not many) carriers require a password. Insert SIM Card

Insert SIM Card



- 1** Face the gold contact points toward each other.
- 2** Insert the SIM card into the slot.
- 3** Push the card in until it reaches the end of the arrow next to the slot.

Hardware Installation

With the SIM card properly inserted, the DWM-652 may now be installed into the computer, which may be done via PCMCIA/ExpressCard Slot or USB port.

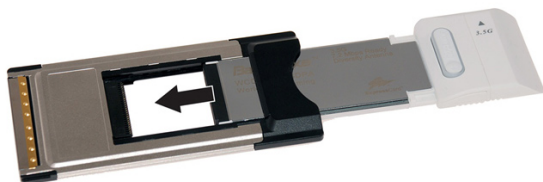


ExpressCard Slot

- 1 Slide the DWM-652 into the slot (SIM card side down, LED side up).
- 2 The LED should light up when connection is established.

PCMCIA Adaptor

- 1 Slide the DWM-652 into the PCMCIA Adaptor (LED & Gold Strip Up, SIM Card Side Down) as far as possible.



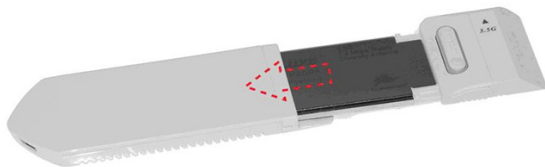
- 2 With the same orientation (antenna side up), slide the DWM-652 - Adaptor unit into the PCMCIA slot.



- 3 The LED should light up when connection is established.

USB

- 1 Slide the DWM-652 into the USB adaptor casing (USB adaptor label & DWM-652 LED side up).



- 2 Insert the small USB plug into the adaptor casing. Insert the two large USB plugs into the computer.
- 3 The LED should light up when connection is established, though it may be obscured.



Software Installation

The process and appearance of certain software elements in Windows Vista will be somewhat different than in 2000/XP. These differences are minor and should not limit the functionality of the DWM-652 in any way.

New Hardware Detection

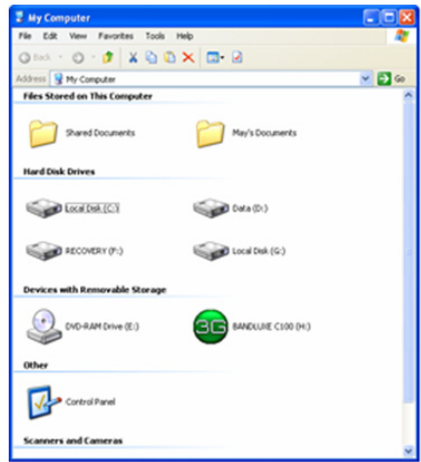
Windows 2000/XP

Once the DWM-652 is connected, a dialog box should pop-up from the Toolbar Hardware Connection Icon. The device will be identified as the D-Link DWM-652 3.5G HSDPA Utility.

Windows Vista

In Vista, a pop-up window may appear. Click Allow to proceed.

After the first pop-up, all other aspects for software installation will be identical in all compatible versions of Windows.

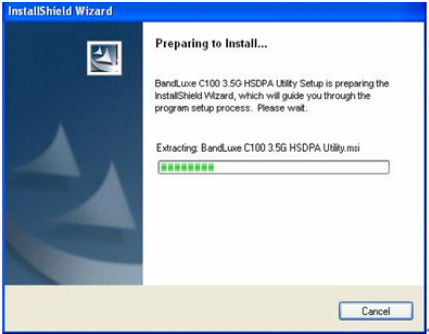


Software installation should proceed automatically. If it does not, it may be initiated from My Computer, where the DWM-652 will be identified as a CD-ROM device. Sometimes a restart will occur during installation. If it does, reinitiate installation from My Computer.

InstallShield Wizard

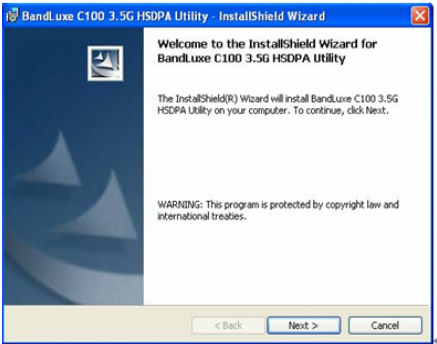
Preparation

The DWM-652 will automatically use the appropriate language for your OS, if available.



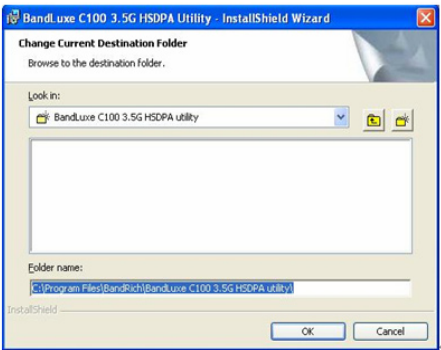
Welcome

The Setup Wizard window opens automatically. The first page contains OS compatibility and legal disclaimers. Click Next to continue.



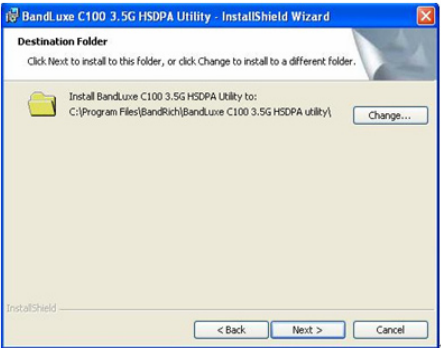
License Agreement

Click I accept the terms in the license agreement > Next to continue.



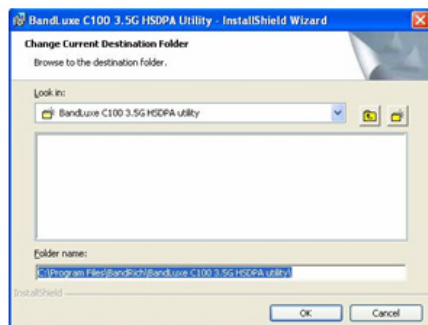
Select Installation Folder

Click Change to manually select a folder.



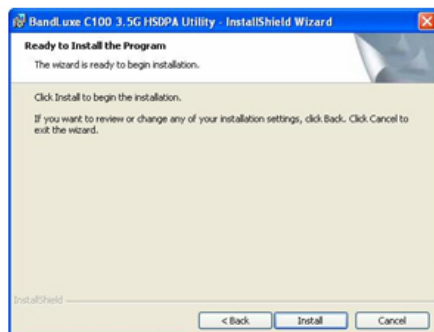
Change Current Destination Folder

Highlight the folder and click OK to select it. Click Cancel to close the Browse window.



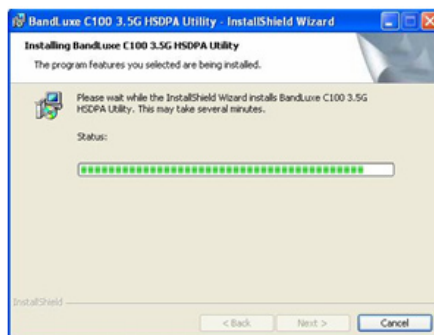
Confirm Installation

Click Back to change any preceding information or settings. Click Install to begin installation.



Installation

Installation time will vary, depending on the computer.



Using the Configuration Utility (continued)

Home Screen

1. Signal Strength
2. Minimize
3. Radio Technology
4. Mobile Network Operator
5. Connection Status
6. Connection Time Elapse
7. Total Data Uploaded
8. Total Data Downloaded
9. Compose Message
10. Radio On/Off
11. Menu
12. Home Screen
13. Connect/Disconnect

Note: The Home screen only indicates 3G (internet) connection status. After installation, the DWM-652 automatically initiates 2G (SMS) functions upon successful connection to the computer. Text messages can be sent or received, even if the Home screen indicates no connection.

Menu Screen

SMS: Text message folders such as Inbox, Draft, etc.

Setting: General, SMS, SIM, Radio and Network preferences.

Statistics: Upload, Download graphs and totals.

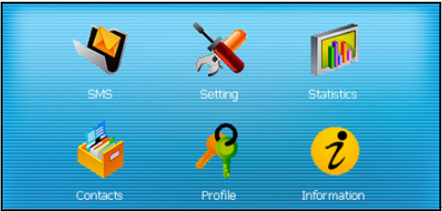
Contacts: DWM-652, SIM Card and Outlook Contact lists.

Profile: Connection profile setup/options.

Information: Device, Version and Signal specifics.

Installation Complete

When installation is complete, click Finish to exit. The Connection Manager will open automatically and bring up the Home Screen. The Quick Start Guide will also automatically open, but only if you have Adobe Acrobat 6.0+.




Connecting

Establishing a Connection

With the DWM-652 fully installed, an online connection can now be made. The DWM-652 will automatically scan your system and create a default profile, which should work in the vast majority of cases. To test it, simply click the Connect button.

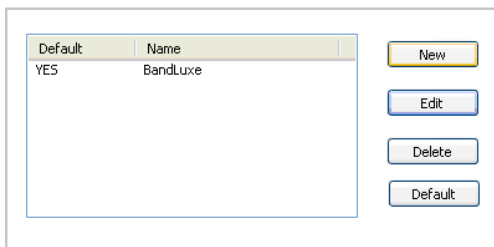


Connection should take about 5 seconds. When established, the Home screen should say Connected, with the onscreen clock running and the Download/Upload tallies running. The toolbar icon  will also change color to indicate the connection protocol (same as LED indicator). See Specifications for details.

If connection is unsuccessful, check that the device and SIM card are properly connected and inserted. If they are, a new internet profile may need to be created.

Create a Profile

- 1 Click Menu > Profile. The profile menu will contain the DWM-652 default profile, named D-Link.



- 2 Click New to create a new profile. Depending on the carrier, all 4 spaces may not need to be filled to proceed.

A screenshot of a 'New Profile' form. It contains four input fields: 'Profile Name' (with 'conn1' entered), 'User Name' (with 'user' entered), 'Password' (with masked dots), and 'APN' (with 'internet' entered). To the right of the fields are two buttons: 'Next' and 'Cancel'.

- 3 Choose a Profile Name. The name is arbitrary and is helpful when different connection methods are available.
- 4 Inquire with the Mobile network operator (SIM carrier) as to whether the User Name and Password are required.

5 The Password can be any combination of letters, numbers or symbols and is case sensitive.

6 Enter the Access Point Name (APN), supplied by the SIM card carrier. With all required slots filled, click Next.

Type the phone number below.

Phone number:

You might need to include a "1" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.

7 Enter the phone number for establishing the wireless connection, supplied by the SIM card carrier; click Next.

Finished
The wizard is ready to create your connection.

Type a name you want for this connection:

Click Finish to save it in the Network Connections folder.

To edit this connection later, select it, click the File menu, and then click Properties.

8 The Finished window is a double check of the Profile Name, which can be modified here. If profile settings need to be changed, click Back. If everything is fine, click Finish.

Default	Name
	user3

New

Edit

Delete

Default

9 On the Profile window, click the newly created profile and then click Default. Click OK to set this profile as the default (only the default can be connected).

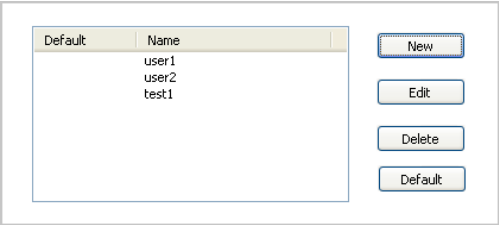
10 The D-Link DWM-652 is now ready for a wireless connection. Click the Connect icon to establish it. Connection should take about 5 seconds. When established, the Home screen should say Connected, with the onscreen clock running and the Download/ Upload tallies counting.

Note: If you switch to a different SIM card, the default profile will no longer be valid. You will have to create a new profile in the manner just described. If you do not have access to all the information necessary to create a new profile, uninstall and reinstall the D-Link software. The new default profile should work for the new SIM card.

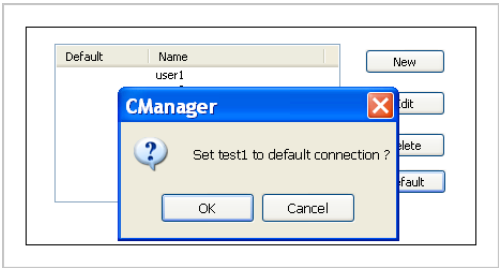
Choose a Profile

Different profiles may be needed, depending on current location.

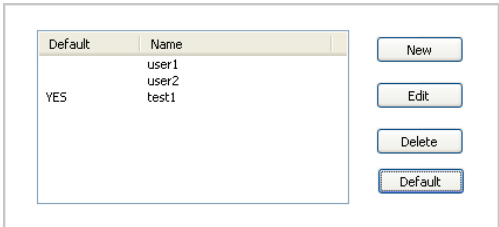
1 Click Menu > Profile.



2 Highlight the desired profile and click Default.



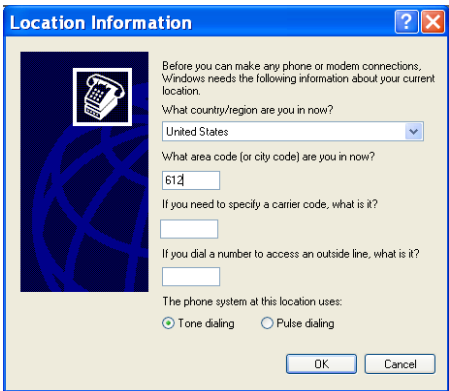
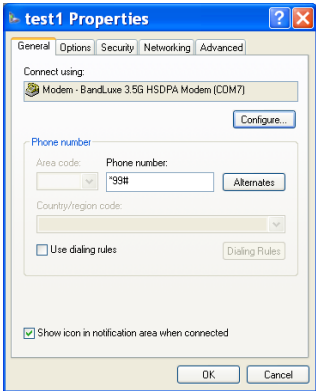
3 Click OK on the confirmation window if this is the desired profile.



4 The word YES will appear next to the default profile.

Profile Properties

Profiles can be fine tuned after creation. In the Profile window, simply click Edit to adjust the default profile. To adjust a non-default profile, highlight it and then click Edit. Click Next on the Edit window to view the Properties menu, General Tab.



General

Connect using

If other modems are available, they will be listed here. Click Configure to adjust the D-Link modem settings.

Phone number

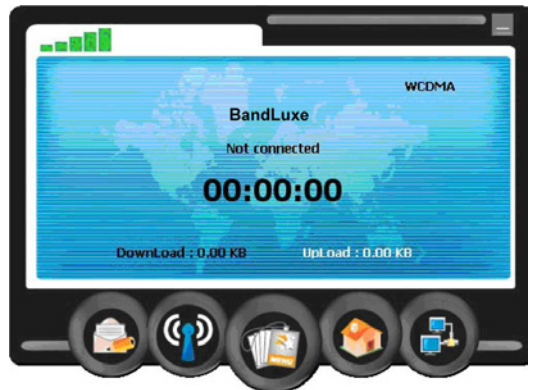
Check Use dialing rules to access the Location Information window to add more specific dialing information such as tone/pulse dialing, current region, area & carrier code, and outside line access number.

Click OK when completed.

This and other Properties menu tabs are generic to the Windows OS and will not be discussed further.

Connecting & Disconnecting

If a default profile has been selected, a connection can be made or ended at any time by clicking the Connect button on the Menu screen. However, connection status will not be obvious unless the Home screen is displayed. The Statistics or Signal Information windows also clearly display connection status.

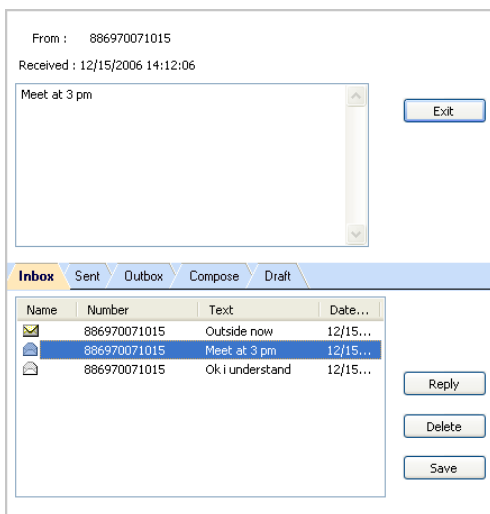
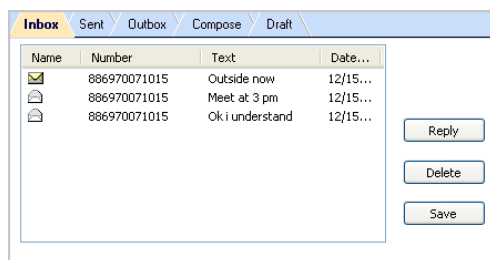


SMS

The Connection Manager allows the same standard SMS options as any other mobile device. Each message stored in the Inbox, Outbox, Sent and Draft folders displays the Name and Number of the contact, the body text of the message and the date it was stored in the folder.

Choose a Profile

Contains received messages. Save, Delete or Reply to Inbox messages by highlighting them and pressing the appropriate button. Highlight a message to make it scroll open above. Unread messages are closed envelopes while read messages are open.



Sent

Contains all successfully sent messages. Highlight a message and press Delete to erase it.

Outbox


Contains completed but unsent messages. Send or Delete messages by highlighting them and pressing the appropriate button.

Compose

Contains all tools for creating messages.


To: Contains the Phone Number of the recipient.

Message Body: Up to 160 characters.

 Press to see contact lists.

 SIM Card Contacts

 Outlook Contacts

 DWM-652 Contacts

ing Highlight a Contact and click Select to choose it. Click Exit to return to the Compose screen.

Click Template to view all stored templates, or create/delete one.

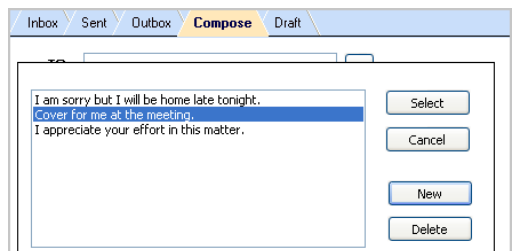
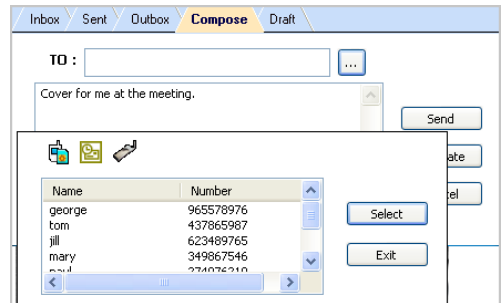
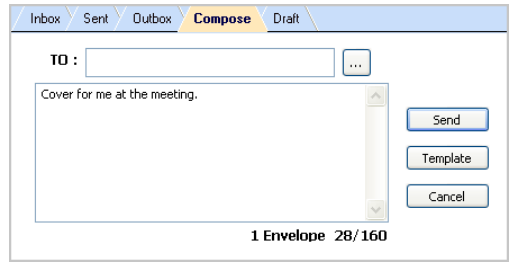
Highlight a template and click Select to insert it into the message.

Click New to create a new template. Click Save to add the new template to the list of existing ones. Click Cancel to return to the Template list window.

Highlight a template and click Delete to erase it.

Draft

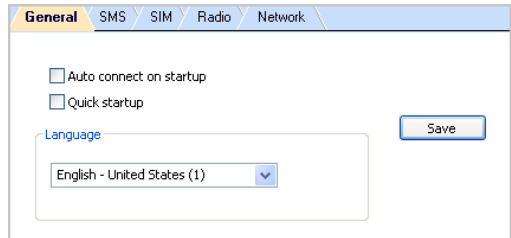
Contains saved but unfinished messages. Highlight a draft and click Edit to send the message back to the Compose window.



Settings

General

Check Auto connect on startup to have the DWM-652 connect to the internet automatically during startup. If speed is essential, clicking Quick startup will cause the auto startup to proceed even faster. However, if you plan to install the DWM-652 onto multiple computers, disable the Quick startup function. Do not have the DWM-652 connected to the computer when you turn it on when Quick startup is enabled.



Language

The Connection Manager offers English, French, German, Spanish, Italian and Traditional Chinese. To choose a language, click the menu and highlight & select a language. Click Save to implement the chosen language. The Connection Manager will then return to the Home Screen with the chosen language.

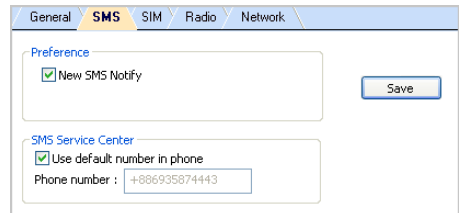
SMS

Preference

New SMS Notify: Check to be notified when a new text message arrives. If enabled, the Toolbar Connection Manager Icon will change to an Envelope Icon. An envelope icon will also appear in the upper left corner of the Home screen when a new message arrives.

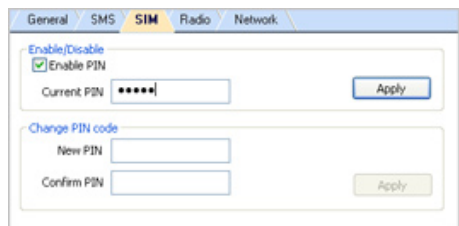
SMS Service Center

Use default number in phone: Uncheck to manually input service center number. Click Save after making any changes.

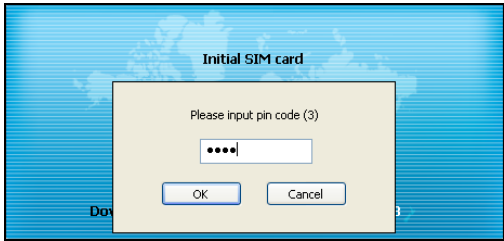


SIM

Enable/Disable or change the SIM card Personal Identification Number (PIN). Press Apply after making any changes. A SIM card must be inserted for this function to be active.



If a PIN code is enabled, it will be asked for during SIM card initialization. After 3 incorrect PIN code entries, the SIM card will be locked. Contact your operator to unlock it.



Radio

Dual Mode- Features various network search options. Note that 3G (including 3.5G) First is the default setting.

Frequency Band

Save network scanning time by eliminating unnecessary frequencies or choose Worldwide if local standards are uncertain.

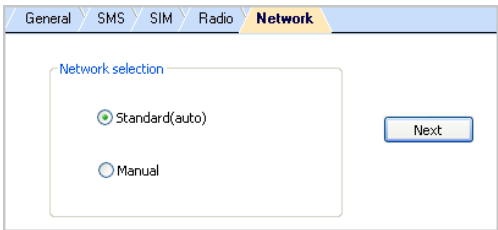
After making changes to either, click Apply.



Network

Network Selection

Standard (auto) Search for networks in the order specified in the Prefer list. Click Standard (auto) > Next to view and adjust the Prefer list.

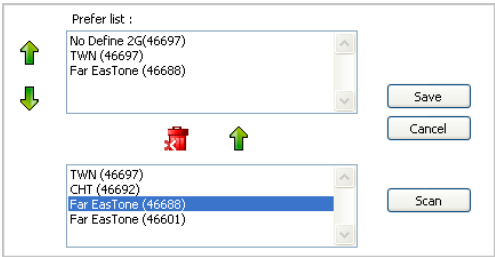


The top list is the Prefer list; the bottom lists all available networks. Click Scan to bring up the list of all available networks.

In the Prefer list, highlight a network and click the up arrow to the left to move it up the list (increase its preference); clicking the down arrow does the opposite. Clicking the red icon removes the highlighted network from the Prefer list.

In the bottom list, highlight a network and click the up arrow above to move that network to the Prefer list.

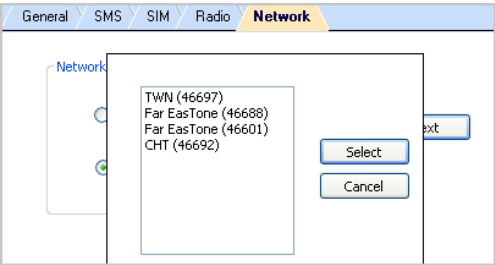
If changes are made, click Save.



Manual

Choose a network from all available. Click Manual > Next to see the list. Highlight a network and click Select. If no change is needed, click Cancel.

Note that Network can only be accessed when the DWM-652 is not connected to a network.



Statistics & Information

Statistics

The Statistics screen displays a graph of recent upload and download activity. If there is no data, the DWM-652 is offline. Click Menu > Statistics.

Time: Elapsed Connection Time

- Returns to zero upon disconnection.
- Reset does not affect it.

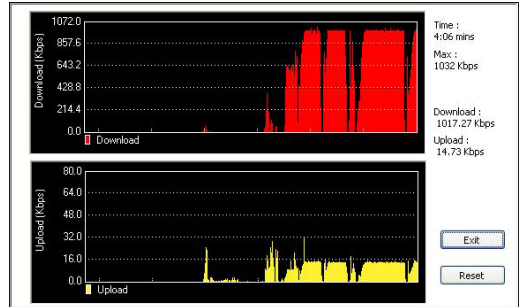
Max: Maximum Throughput

Download: Current Downloading Throughput

Upload: Current Uploading Throughput

Click Reset to end the current graphs and start over. This will not affect the actual connection.

To leave this window, click Exit.



Information

The Information screen offers version or signal specifications. Click Menu > Information.

About

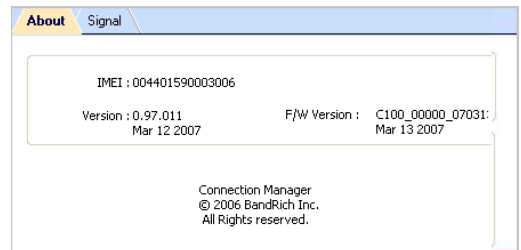
Click Menu > Information > About tab to see version data.

IMEI: International Mobile Equipment Identity number

Version: Connection Manager

Software Version

F/W Version: Firmware Version



Signal

Click the Signal tab to see signal data. The bottom half of the screen will be empty when there is no connection or during a 2G connection. Displayed indicators will vary, depending on your protocol.

ARFCN: See Glossary

Tx & Rx Power: Transmission/ Reception strength, in decibel meters (dBm)

Frequency: In MHz

Active Set: UMTS cell actually transmitting data, marked YES

Primary Scramble Code: Individual UMTS cell ID code

Ec/Io: Reception/Interference (S/ N), Connected (3G) in decibels (dB)

AboutSignal

ARFCN : 694.00Rx Power : -54.00 dBm
Frequency : 1746.60 MHz

AboutSignal

Tx Power : -19.00 dBmRx Power : -74.08 dBm
Frequency : 2112.60 MHz

Cell Information

Active Set	Primary Scramble Code	Ec/Io (dB)
YES	306	-4.19
	418	-6.53
	426	-16.13
	410	-19.24

Q&A

Q:I am trying to install the DWM-652 onto another computer, but the software installation window is not opening, nor is there an icon in My Computer, what do I do?

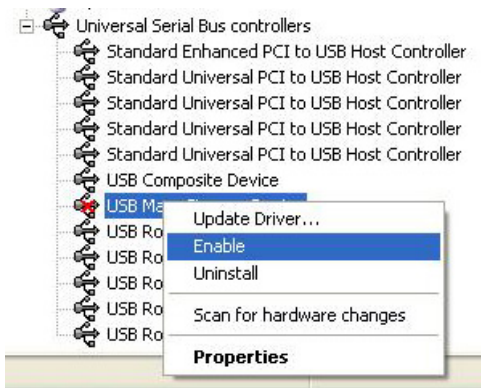
A: Quick startup has already been enabled on a different computer. Reconnect the DWM-652 to that computer and disable this function. There are two ways to do this.

1. Click Menu > Setting > General tab. Uncheck Quick startup and click Save. See Chapter 4 for more information.
2. This method varies depending on the OS.

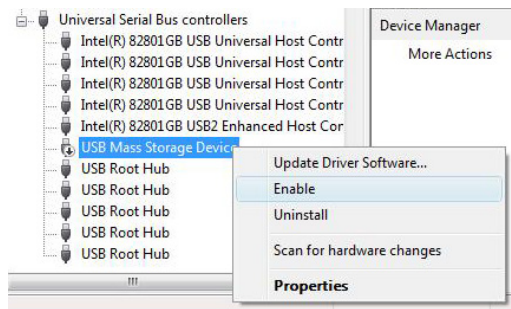
Vista / XP

a. Right-click on My Computer > Manage > Universal Series Bus controllers. Right-click USB Mass Storage Device and choose Enable. The DWM-652 should now appear as a CDROM USB Device.

XP



Vista



b-1 (XP): The InstallShield Wizard should start running automatically. If it does not, click on the D-Link icon in My Computer. The software will reload as seen in Chapter 1.

b-2 (Vista): Shortly after enabling the DWM-652, an AutoPlay window may pop-up. Choose AUTORUN_ DWM-652.EXE

Q: Why does the Home screen display No Device?

A: Make sure that the DWM-652 is plugged in/inserted correctly. If it is, and No Device is still displayed, check the LED.

If the LED is not lit, the problem could be:

- The USB cord or adapter casing is not functioning (if applicable).
- The DWM-652 is not slid correctly into the adapter casing.
- The USB port or PCMCIA/ExpressCard Slot is not active. Check the Device Manager.



Q:The Home screen is stuck on Initial SIM Card, what do I do?

A: Replug/reconnect the DWM-652. If this does not work, restart the computer. If this does not work, check the SIM card, which may have a poor connection or be locked.

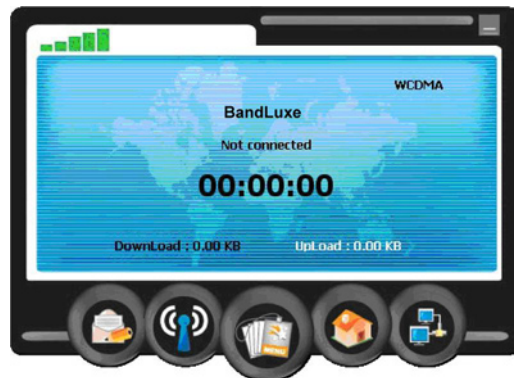
Q:Why does the DWM-652 need 2 USB ports?

A: This is necessary to supply sufficient power to transmit during peak loads and to avoid dropped calls.

Q: The SIM card is working, so why can't the DWM-652 make a connection?

A: Check the profile information; click Menu > Profile. See Chapter 2 for details.

If profile settings are in order, the radio or network settings may need adjustment. Click Menu > Setting. See Chapter 4 for details. If Radio and Network settings are in order, please check the signal strength indicator in the upper left corner of the Connection Manager.



Q:Why does the DWM-652 need 2 USB ports?

A: Click Menu > Contacts >



Import from the SIM Card.



Import from Outlook.



Import from the DWM-652 Contacts folder.

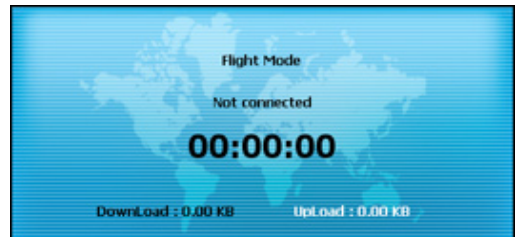
Q:After unblocking my SIM card, the Connection Manager asks for a PIN. What do I do?

A: Input the password as 0000. After inputting this password, change it for security.

Q:Can I use the Connection Manager on an airplane?

A: Yes, you can simply unplug the DWM-652. This will allow you to compose messages, adjust most settings, or perform other Connection Manager functions. However, removing the SIM card, while keeping the DWM-652 plugged in, is not the same as unplugging it. Removing the SIM card will cause the Connection Manager software to close after a few moments.

You may also keep the DWM-652 plugged in, but in Flight Mode. Click the Connection Manager RF icon; if the X is on, the radio is off and the DWM-652 is safe for in-flight use.



The words Flight Mode will also appear on the Home Screen.

Q:My OS is Microsoft 2000 SP4, so why is software installation still not working?

A: Two more Microsoft HotFix downloads are needed:

1. KB893803: Windows Install 3.1

<http://www.microsoft.com/downloads/details.aspx?FamilyID=889482fc-5f56-4a38-b838-de776fd4138c&displaylang=en&Hash=PAFe2q2M7AKWEGBCm62PeiJS4ViwKMUiwH7KOHOV4d4P8gXcVDuwnXIDI9LT%2bqx85W4mPHaGPwG4ne6KUKaD3Q%3d%3d#filelist>

2. KB842773: Windows 2000 HotFix (Update for BITS 2.0 and WinHTTP 5.1)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=3ee866a0-3a09-4fdf-8bdb-c906850ab9f2&DisplayLang=en>

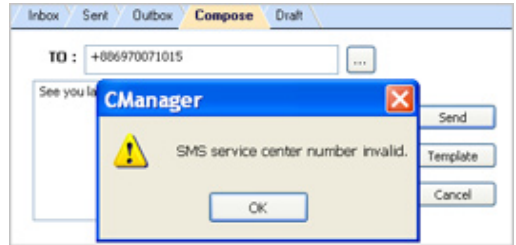
Q:Why do some SMS text symbols display incorrectly on the receiving phone?

A: This is related to the different decoding schemes used by various mobile phone brands. Known problem symbols include:

~ ! @ # \$ % ^ & * () _ + ` - = { } | : " < > ? [] \ ; ' , . /

Q:The Connection Manager is prompting me that my SMS service center number is invalid. What do I do?

A: Click Setting > SMS and change the SMS service number. See Chapter 4 for details.



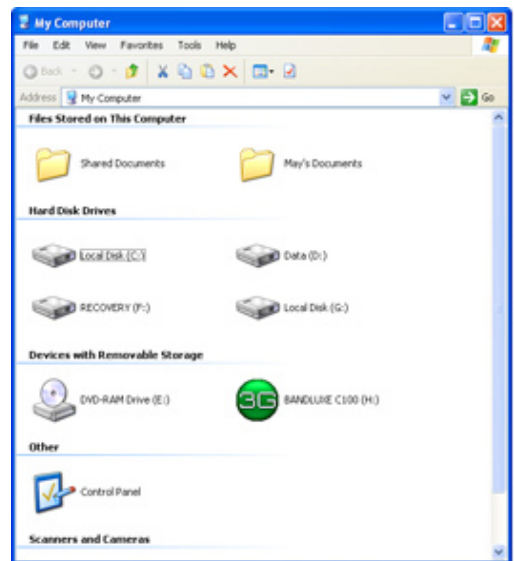
Q:The InstallShield Wizard does not automatically open when I first plug in the DWM-652, what do I do?

A: In My Computer, right click on the drive with the Connection Manager icon and select AutoPlay. This should initiate the InstallShield Wizard.

 D-Link DWM-652 (H:)

Q:My computer cannot boot with the DWM-652 connected. Why?

A: As discussed in Chapter 1, during installation the DWM-652 is displayed in My Computer as a portable storage device. The computer treats the DWM-652 as if it were a CD drive. Because of this, your computer may be trying to boot from it, as if it were expecting a Boot CD. Disconnect the DWM-652 before booting. The computer treats the DWM-652 as if it were a CD drive. Because of this, your computer may be trying to boot from it, as if it were expecting a Boot CD. Disconnect the DWM-652 before booting.



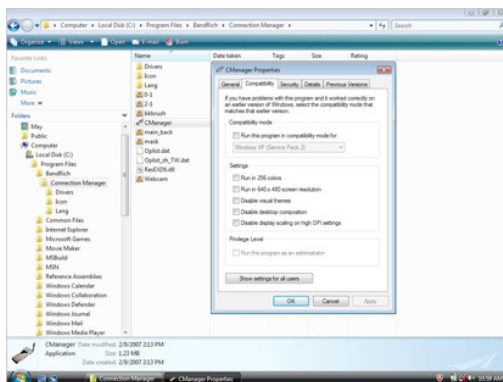
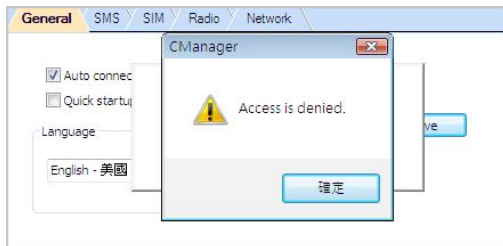
Q:How do I view the .pdf Quick Start Guide and User Manual?

A: Click Start > Programs > D-Link > D-Link DWM-652 3.5G HSDPA utility and choose either document, both of which require Adobe Acrobat 6.0.

Q:The Connection Manager is having troubles running on Vista. What do I do?

A: You may be having a problem with Vista's user control functions.

1. Open the Connection Manager folder.
2. Right click CManager.exe > Properties > Compatibility tab.
3. Check Run this program as an administrator.
4. Click Apply > OK.



Important Safety Information and Glossary

Safety Information

Important Notice

Due to the transmission and reception properties of cellular communications, data can occasionally be lost or delayed. This can be due to the variation in radio signal strength that results from changes in the characteristics of the radio transmission path.

Although data loss is rare, the environment where you operate the DWM-652 may adversely affect communications. Variations in radio signal strength are referred to as fading. Fading is caused by several different factors including signal reflection, the ionosphere, and interference from other radio channels.

D-Link Corporation or its partners will not be held responsible for damages of any kind resulting from the delays or errors in data transmitted or received by the D-Link DWM-652, or failure of the D-Link DWM-652 to transmit or receive such data.

D-Link is a registered trademark of D-Link Corporation

Potential Hazards

Do not operate the D-Link DWM-652 in an environment that may be susceptible to radio interference resulting in danger; specifically:

Areas where prohibited by the law.

- Follow any special rules and regulations and obey all signs and notices. Always turn off the host device and remove the DWM-652 from the card slot when instructed to do so, or when you suspect that it may cause interference or danger.

Where explosive atmospheres may be present.

- Do not operate your DWM-652 in any area where a potentially explosive atmosphere may exist. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Be aware and comply with all signs and instructions.

- Users are advised not to operate the DWM-652 while at a refueling point or service station. Users are reminded to observe restrictions on the use of radio equipment in fuel depots (fuel storage and distribution areas), chemical plants or where blasting operations are in progress.

- Areas with a potentially explosive atmosphere are often but not always clearly marked. Potential locations can include gas stations, below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine.

Near Medical and life support equipment.

- Do not operate your DWM-652 in any area where medical equipment, life support equipment, or near any equipment that may be susceptible to any form of radio interference. In such areas, the host communications device must be turned off. The DWM-652 may transmit signals that could interfere with this equipment.

On an aircraft, either on the ground or airborne.

■ In addition to FAA requirements, many airline regulations state that you must suspend wireless operations before boarding an airplane. Please ensure that the host device is turned off and your DWM-652 is removed from the card slot prior to boarding aircraft in order to comply with these regulations. The DWM-652 can transmit signals that could interfere with various onboard systems and controls. While operating a vehicle.

■ The driver or mobile network operator of any vehicle should not operate a wireless data device while in control of a vehicle. Doing so will detract from the driver or mobile network operator's control and operation of that vehicle. In some countries, operating such communications devices while in control of a vehicle is an offense.

Regulations

CE Marking

This device has been tested to and conforms to the regulatory requirements of the European Union and has attained CE Marking. The CE Mark is a conformity marking consisting of the letters "CE". The CE Mark applies to products regulated by certain European health, safety and environmental protection legislation. The CE Mark is obligatory for products it applies to: the manufacturer affixes the marking in order to be allowed to sell his product in the European market.

This product conforms to the essential requirements of the R&TTE directive 1999/5/EC in order to attain CE Marking. A notified body has determined that this device has properly demonstrated that the requirements of the directive have been met and has issued a favorable certificate of expert opinion. As such the device will bear the notified body number 0678 after the CE mark.

The CE Marking is not a quality mark. Foremost, it refers to the safety rather than to the quality of a product. Secondly, CE Marking is mandatory for the product it applies to, whereas most quality markings are voluntary.

Marking: The product shall bear the CE mark, the notified body number(s) as depicted to the right. CE 0678.

CE Marking15.21 Federal Communications Commission (FCC) Statement

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b) Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause

harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Operation is subject to the following two conditions:

- 1** this device may not cause interference and
- 2** this device must accept any interference, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

- 1** This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- 2** This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

SAR compliance has been established in a laptop computer with side PCMCIA ExpressCard slot configuration as tested in this filing, and can be used in laptop computers with substantially similar physical dimensions, construction, and electrical and RF characteristics. Compliance of this device in all final host configurations is the responsibility of the Grantee. End-users must be provided with specific information required to satisfy RF exposure compliance for all final host devices.

Specifications

System Requirements

Operating System: Windows 2000 SP4+, XP SP2+ or Vista

Hard Drive Space: 30 MB

Web Browser: Internet Explorer 6.0+

Interface: ExpressCard slot, 2 USB ports or PCMCIA slot

LED Indicators

Color	Indicator	Flashing	Solid
Off	Not Connected/ Flight Mode	NA	NA
Red ●	SIM Card/Ser- vice	No coverage/ still searching	Error (SIM card miss- ing, failed verification)
Green ●	WCDMA	Available	Connected
Blue ●	HSDPA	NA	Connected
Pink/Purple ●/●	GPRS/EDGE	Available	Connected

Hardware

Dimensions: 119.6 x 42 x 11.3mm (LWH, including antenna)

Weight: 40g

Onboard Memory: 64 MB NAND Flash & 64 MB SDRAM

GSM Bands: 850, 900, 1800, 1900

UMTS Bands: 850, 1900, 2100

Connectivity

Internet: DUN

Data Speed (HSDPA) Downlink: 7.2Mbps/3.6Mbps/1.8Mbps/
in bps: 384Kbps

Uplink: 384Kbps (Max)

Radio/Band Selection: 3/3.5G: EU+Asia (2100), US (850/1900)

2G: EU+Asia (900/1800), US (850/1900)

IP Settings: APN, DNS, DHCP vs. Static, Radius

Glossary

2G: Second-generation mobile networking technology. Represents a switchover from analog to digital; most 2G networks use GSM.

3G: Third-generation mobile networking technology that enables simultaneous transfer of voice and non-voice data; most 3G networks use WCDMA.

3.5G: A more recent standard of mobile networking technology; generally uses HSDPA.

APN (Access Point Name/Network): Provides GPRS routing information. Consists of:
Network ID: Identifies the external service requested by a GPRS user.
Mobile network operator ID: Specifies routing information.
ARFCN (Absolute Radio Frequency Channel Number): The specific ID numbers for all radio channels used in cellular mobile communications.
Bps (bits per second): How data flow is measured.
DNS (Domain Name System): Helps route network traffic by making the addressing process more user-friendly.
DHCP (Dynamic Host Configuration Protocol): How devices obtain IP addresses from a server.
DUN (Dial-Up Network): Windows component that enables online access via a modem.
EDGE (Enhanced Data GSM Environment/Enhanced Data for Global Evolution): Advanced GPRS that delivers multimedia and other data needing greater bandwidth at up to 237 kbps.
GPRS (General Packet Radio Service): Delivers data in packets at up to 86 kbps.
GSM (Global System for Mobile Communications): The most popular cellular network, mostly operates in 850-900 or 1800-1900 MHz; the primary 2G system.
IMEI (International Mobile Equipment Identity): A number unique to each GSM/UMTS device that can be used block network access by a stolen mobile device.
IP (Internet Protocol): Routes packets over a network.
HSDPA (High Speed Downlink Packet Access): Advanced WCDMA that delivers bandwidth intensive data at up to 7.2Mbps; typically associated with 3.5G.
Kbps (Kilobits per second): A data flow measure; 1024 bits/second.
LAN (Local Area Network): A data network with limited range but good bandwidth.
Mbps (Megabits per second): A data flow measure; 1,048,576 bits/second.
PPP (Point-to-Point Protocol): An internet connection method.
PIN (Personal Identity Number): Four to eight digit numbers SIM card security code; allows access to the carrier's network.
Rx: Shorthand for Reception.
SIM (Subscriber Identity Module): A small card that contains key mobile device identification, subscription and contact information.
SMS (Short Messaging Service): Allows text messages of up to 160 characters.
Tx: Shorthand for Transmission.
WCDMA (Wideband Code Division Multiple Access): Advanced EDGE that supports 384kbps data flow. Most 3G networks use this standard; aka UMTS.